

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 20

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

Ex parte JAMES L. APPLE, JERRY L. DONZE,  
JAMES C. FAULK, ROBERT BILLINGTON, GERALD M. GRAMMENS,  
GERARD FITZPATRICK, and TIMOTHY C. OSTWALD

MAILED

DEC 15 2005

U.S. PATENT AND TRADEMARK OFFICE  
BOARD OF PATENT APPEALS  
AND INTERFERENCES

Appeal No. 2005-1531  
Application No. 09/451,574

ON BRIEF

Before FRANKFORT, McQUADE, and BAHR, Administrative Patent Judges.  
McQUADE, Administrative Patent Judge.

DECISION ON APPEAL

James L. Apple et al. originally took this appeal from the final rejection (mailed May 17, 2002) of claims 1-7 and 22. As the appellants have since canceled claim 4, the appeal now involves claims 1-3, 5-7 and 22, all of the claims currently pending in the application.

THE INVENTION

The invention relates to "apparatus for restoring and retrieving large amounts of data contained within tape cartridges" (specification, page 1). Representative claims 1 and 22 read as follows:

1. An apparatus for manipulating storage units in a library, the apparatus comprising:
  - a first center column having a first arm with first and second ends wherein the first end of said first arm is attached to said first center column and said first arm extends substantially radially outward from said first center column;
  - a first hand attached to the second end of said first arm for manipulating storage units from the library;
  - a second center column having a second arm with first and second ends wherein the first end of the second arm is attached to the second center column and said second arm extends substantially radially outward from said second center column; and
  - a second hand attached to the second end of said second arm for manipulating storage units from the library; wherein said first arm and said second arm rotate about a same vertical axis of rotation; and
  - each arm and hand is independently moveable from the other arm and hand.
22. A data storage and retrieval system adapted to operate within a library service module having an array of cells configured to receive data storage units, the system comprising:
  - a first robot unit, wherein the first robot unit transports a data storage unit to and from the array of cells; and
  - a second robot unit, located within the array of cells, wherein the second robot unit, independently with respect to the first robot unit, manipulates data storage units placed in the array of cells.

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THE PRIOR ART

The references relied on by the examiner to support the final rejection are:

Sander	3,503,293	Mar. 31, 1970
Mason	4,098,088	Jul. 04, 1978
Cheatham et al. (Cheatham)	5,456,569	Oct. 10, 1995
Saito, Japanese Patent Document <sup>1</sup>	6-40505	Feb. 15, 1994

THE REJECTIONS

Claims 1-3, 5-7 and 22 stand rejected under 35 U.S.C. § 112, second paragraph, as failing to particularly point out and distinctly claim the subject matter the appellants regard as the invention.

Claims 1-3, 5-7 and 22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Cheatham in view of Sander or Mason.

Claim 22 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Saito.

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<sup>1</sup> As the result of an earlier remand (mailed October 15, 2003), the examiner has made of record a machine-assisted translation of this reference.

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Attention is directed to the main and supplemental briefs (filed August 27, 2002 and August 9, 2004) and the final rejection and answer (mailed May 17, 2002 and November 4, 2002) for the respective positions of the appellants and examiner regarding the merits of these rejections.

#### DISCUSSION

##### I. The 35 U.S.C. § 112, second paragraph, rejection of claims 1-3, 5-7 and 22

The examiner considers claims 1-3, 5-7 and 22 to be indefinite for the following reasons:

Re base claims 1 and 22, no library (cell) structure (shelves, wall, etc.) has been set forth; moreover, no motive means to move the arms, hands, etc., (claim 1) or robot (claim 22) has been set forth; also re claim 22, no means has been set forth to mount the robot units and re base claims 1 and 22, it is not understood what function occurs during the manipulation of the storage units [answer, page 3].

These observations amount to criticisms of the appealed claims simply because they are, in the examiner's view, too broad. Mere breadth, however, does not equate to indefiniteness. In re Miller, 441 F.2d 689, 169 USPQ 597, 600 (CCPA 1971). In short, it is not evident, and the examiner has not cogently explained, why the claims, despite their breadth, fail to

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delineate the subject matter the appellants regard as their invention with a reasonable degree of precision and particularity.

Accordingly, we shall not sustain the standing 35 U.S.C. § 112, second paragraph, rejection of claims 1-3, 5-7 and 22.

II. The 35 U.S.C. § 103(a) rejection of claims 1-3, 5-7 and 22 as being unpatentable over Cheatham in view of Sander or Mason

Cheatham discloses a robotic mechanism for storing and retrieving data-containing magnetic tape cartridges. The mechanism comprises a horizontal axis assembly 90 which is balanced to reduce problematic oscillatory motions and structural stresses (see column 2, line 47, through column 3, line 22). The following passage from the reference describes the assembly within its operational environment:

. . . FIG. 1 depicts an automated memory cartridge system 100 using a balanced horizontal axis assembly 90. Base 18 is fastened to the automated memory cartridge system floor 26 by way of a number of bolts 27. Ideally, it is desirable to have the base 18 and floor 26 weigh as little as possible so that users of the system 100 are able to move the system 100 as needed.

When horizontal axis 28 revolves about the center axis of rotation 30, moments are generated relative to

the base 18 and ultimately upon floor 26. However, in the preferred embodiment, two vertical axes, 10a and 10b, are disposed one at each end of horizontal axis 28. In addition, each vertical axis 10 has associated with it camera and hand assemblies 12a and 12b, respectively, so that the overall weight distribution is balanced with respect to the center axis of rotation 30. The direction of the only moments generated upon the floor 26 are parallel to the direction in which the floor 26 is most rigid, unlike the moments generated in the prior art robot shown in FIG. 3.

When a host computer system determines that a particular tape must be accessed, an appropriate signal is sent to the automated memory cartridge system 100 via flexible coil 22. The information carried along flexible cable 22 is decoded by the control electronics 20, which is mounted by a card cage mount 24. The appropriate signals from a host computer direct servo motor 50 to revolve horizontal axis 28 to the appropriate position. Servo motor 50, in association with the control electronics 20, are programmed and controlled such that the shortest direction of rotational movement is selected in order to align horizontal axis 28 to select the proper tapes. The horizontal axis 28 is prevented from moving too far by horizontal axis stop assembly 14.

In FIG. 2, rotational servo 50 is used to generate the angular motion of horizontal axis 28 about the center axis of rotation 30. In FIG. 2, only one vertical axis 10 is shown, although a second axis would be mounted to vertical axis mounting fixture 40 in the preferred embodiment. The base 18 is connected to the rotational servo 50 by mounting hardware 16, which cooperates with the stop assembly 14. The hand and camera assemblies 12 (i.e., 12a and 12b) are mounted respectively to vertical axes 10a and 10b by transports 15a and 15b respectively. The transports 15 move vertically along the vertical axes 10 so that the two pairs of hands 12 are properly aligned in the vertical direction [column 4, line 50, through column 5, line 26].

Cheatham admittedly lacks response to the limitations in independent claim 1 requiring each arm and hand to be independently movable from the other arm and hand, and to the corresponding limitations in independent claim 22 calling for the second robot unit to manipulate data storage units independently with respect to the first robot unit. The examiner's reliance on either Sander or Mason to overcome these deficiencies is not well taken.

Sander discloses a manually operable transfer device for replacing cutting disc assemblies on a sheet metal slitter, and Mason discloses a submersible chamber having a plurality of rotatable and extensible robot arms for working on a subsea station such as an offshore well-head. According to the examiner, it would have been obvious in view of either Sander or Mason to replace Cheatham's rotatable horizontal axis or arm 28 with two separate rotatable arms "to increase the flexibility of the [Cheatham] apparatus" (answer, page 4).

Sander's cutting disc transfer device and Mason's submersible work chamber have little in common with Cheatham's data storage and retrieval robot. Even if Sander and Mason are

assumed to be analogous art with respect to the claimed invention notwithstanding the appellants' argument to the contrary, neither would have suggested the modification of the Cheatham assembly advanced by the examiner. The only suggestion for combining the disparate teachings of these references in the manner proposed stems from hindsight knowledge impermissibly derived from the appellants' disclosure. Indeed, Cheatham's insistence that the horizontal axis assembly 90 be balanced to reduce oscillatory motions and structural stresses clearly would have taught away from replacing balanced arm 28 with two independently movable arms or robot units.

Hence, we shall not sustain the standing 35 U.S.C. § 103(a) rejection of independent claims 1 and 22, and dependent claims 2, 3 and 5-7, as being unpatentable over Cheatham in view of Sander or Mason.

III. The 35 U.S.C. § 103(a) rejection of claim 22 as being unpatentable over Saito

Saito discloses a system for transporting panels, such as those used in cathode ray tubes, between storage shelves and

conveyors. As shown in the drawings, the system comprises adjacent panel conveyors 1A and 1B for conveying small panels 10A and large panels 10B, respectively, panel storage shelves 2A and 2B for storing the small and large panels, respectively, and robots 3A and 3B for transporting the small and large panels between their respective storage shelves and conveyors. The storage shelves 2A and 2B have opposing semi-circular configurations, and the robots 3A and 3B stand side-by-side within the circular array defined by the shelves.

As framed and argued by the appellants, the dispositive issue with respect to the subject rejection is whether Saito teaches or would have suggested the relationship defined in claim 22 between the array of cells and the first and second robot units. In this vein, the appellants submit that (1) "this claim recites two robotic units, but only one array of cells" (main brief, page 7), (2) "[neither] does [Saito] appear to suggest a modification so that each robotic arm could serve the entire circular array" (main brief, page 8), (3) "[Saito] remains two robotic arms serving two arrays of storage cells, rather than two arms serving the single array of storage cells, as claimed" (main brief, page 8), and (4) "the claim to a single array of storage

cells served by two independent robot units provides a distinction over [Saito] which shows two different arrays of cells, each array served by its own robot unit" (supplemental brief, page 3).

While the appellants' characterization of the Saito system is essentially accurate, the arguments premised thereon are unconvincing because they are not commensurate with the actual scope of claim 22. Saito's shelves 2A and 2B collectively define an array of cells as broadly defined in claim 22 and Saito's robots 3A and 3B constitute first and second independently operable robot units located within such array of cells. Claim 22 does not contain any limitation which requires each of the robotic units to be capable of serving the entire array of cells.

Hence, the appellants' contention that Saito would not have rendered obvious the subject matter recited in claim 22 is not convincing. Therefore, we shall sustain the standing 35 U.S.C. § 103(a) rejection of claim 22 as being unpatentable over Saito.

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SUMMARY

The decision of the examiner:

- a) to reject claims 1-3, 5-7 and 22 under 35 U.S.C. § 112, second paragraph, is reversed;
- b) to reject claims 1-3, 5-7 and 22 under 35 U.S.C. § 103(a) as being unpatentable over Cheatham in view of Sander or Mason is reversed; and
- c) to reject claim 22 under 35 U.S.C. § 103(a) as being unpatentable over Saito is affirmed.

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No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED-IN-PART

*Charles E. Frankfort*

CHARLES E. FRANKFORT )  
Administrative Patent Judge )

*John P. McQuade*

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